FINAL (unaudited) report to Fondation Eagle – 31st May , 2024

Solar energy for the Sunshine street boys Centre, Naivasha, Kenya

Fondation Eagle Reference: FF 702

Name of Charity: Footsteps International (UK registered charity number 1091026)

Introduction

On 7th December 2023, Fondation Eagle accepted our project proposal and awarded Footsteps International a grant of GBP 4,948. The aim of the project was to install a solar energy system to simultaneously reduce running costs, increase productivity, improve security, and reduce environmental impacts.

The project involved sourcing a suitable solar energy supplier, supervising the installation, and monitoring the results.

The **project beneficiaries** are the 75 former street boys resident at the Centre, and 20 staff who care for them (95 total).

We **received the grant** on 21st December, 2023 as part of a grant of GBP 41,527 for four projects for which we had applied for funding. We **transferred funds** to Kenya on 22nd December, 2023. **Installation** was started on 9th January and competed on 18th January, 2024.

Project achievements

Pre- Installation activities

a) Site survey by expert

On 8th December, 2023, a survey was undertaken to estimate the Centre's energy consumption and calculating the size of the solar system required. The engineer, Mr Muli, assessed the wattage of all the electrical appliances and the number of hours they are in operation daily. The survey also ensured that the area where we planned to install the solar panels received ample sunlight throughout the day.

b) Equipment Checklist:

After making the site visit Mr Muli developed a checklist of the equipment needed for a solar energy system. This included solar panels, a charge controller, wires (AC & DC), solar panel mounts, an inverter, lightning arrester, earthing cables, MC4 connectors and a battery.

c) Equipment delivery:

The equipment was delivered to site on 10th January 2024 .

Director Rev. Simon Kinyanjui with the equipment prior to installation

Installation

a) Installing the solar mounting structure

The first step in solar panel installation was fixing the mounting structure to support the panels. The whole mounting structure was tilted to have an angle between 15 to 20 degrees to have maximum sunlight exposure.

Since ours are sloped roofs, a set of rails was installed on the roof to hold the solar Panels. Flashings, screws and bolts were used to attach the rails by drilling the roof and using sealant to prevent water leakage.

b) Mounting the Solar Panels

Once the mounting structure was installed, the engineer fixed the solar panels to the structure. For this he needed to place the panels in such a way that the mounting holes are perfectly lined up with the rails.

A total of 8 panels were mounted on 2 different roofs to ensure maximum harvesting of solar light for the dormitories, office, staff quarters, classrooms, dining hall and the security lights.

The photo shows Mr Muli mounting the solar panels on the roof of the office.

c) Wiring and connections

All wiring was done in accordance with applicable electrical codes. The solar panels were connected to the inverter, and this was then connected to the solar battery. The earthing was checked to ensure safety.

d) Turning on the Inverter:

Once all the connections had been made and safety checks completed, the solar inverter was switched on. The engineers monitored the digital display to ensure proper functioning and to check the display showing energy generation and usage.

The photo shows the engineers installing the batteries and inverter. The whole process of solar power system installation was completed between 9th- 18th January 2024.

Project achievements

a) Since the installation was completed, the Centre has been generating much of its electricity from the solar energy system.

b) The office has been operating off grid, even during the recent rainy season when it was cloudy the whole day. This means that work continues uninterrupted, which was not the case before when mains power cuts disrupted work, sometimes for the whole day.

c) The security lights operate 100% of the time at night, and the compound is no longer in darkness caused by mains power cuts. This helps keep our boys and staff safe.

d) Our power bill has reduced from KES 39,000 in the month prior to installation to KES 12,000 in February, KES 15,000 in March, and KES 14,000 in April. The saving is averaging 65% - this is likely to improve outside the rainy season. This saving in energy costs leaves more money available to provide food, education and care for our former street boys.

e) The project enhances the sustainability credentials of the Sunshine Centre, and provides our former street boys with an increased awareness of the need to care for the environment by using non-carbon based fuel sources.

Expenditure summary

Our estimated cost for the project was 875,800 Kenya Shillings (KES) at an exchange rate of GBP 1 = KES 185. We received the grant on 21st December, 2023 as part of a grant of GBP 41,527 for four projects for which we had applied for funding. We transferred the funds to Kenya on 22nd December, 2023, obtaining an actual exchange rate of GBP 1= 197.4 KES.

Our project team delivered the project for KES 850,300 a small underspend of KES 4,308. However, overall, the project was delivered with an overall **underspend of GBP 426** against the budget; this was the result of a favourable exchange rate when we transferred the funds to Kenya, and tight budget control.

The table below provides a detailed breakdown of the budgeted and actual expenditure (overspends are shown as negative figures).

					Exchange rate	*185*		*197.39*		
Sunshine Centre solar installation					**Budget**		**Actual**			
Ref	**Item description**	**Qty**	**UoM**	**Price**	**Est cost KES**	**Est cost GBP**	**Actual cost KES**	**Actual cost GBP**	**Variance KES**	**Variance GBP**
1	200AH Rltar Batteries	4	Lot	40,000	160,000	865	154,000	780	6,000	85
2	560wp Solar panels -jinko	8	Lot	25,200	201,600	1,090	188,000	952	13,600	137
3	5 KVA low frequency Hybrid inverter -	1	Lot	140,000	140,000	757	153,000	775	-13,000	- 18
4	Electrical intergration gear: cables and fittings	1	No.	35,000	35,000	189	35,000	177	-	12
5	Mounting structure : solarand steel battery rack	1	No.	50,000	50,000	270	50,000	253	-	17
6	solar flood lights 100 watts	8		10,500	84,000	454	72,000	365	12,000	89
7	Installation labour and transport	1	No.	55,000	55,000	297	55,000	279	-	19
	Total				**725,600**	**3,922**	**707,000**	**3,582**	**18,600**	**340**
	Lights + TV									
Ref	**Item description**	**Qty**	**UoM**	**Price**	**Est cost KES**	**Est cost GBP**	**Actual cost KES**	**Actual cost GBP**	**Variance KES**	**Variance GBP**
1	200AH Rltar Batteries	1	Lot	40,000	40,000	£216	38,500	£195	1,500	21
2	560wp Solar panels -jinko	1	Lot	25,200	25,200	£136	24,800	£126	400	11
3	1 KVA Hybrid Inverter -	1	Lot	35,000	35,000	£189	30,000	£152	5,000	37
4	Electrical intergration gear: cables and fittings	1	No	15,000	15,000	£81	15,000	£76	-	5
5	Mounting structure : aluminium solar and steel battery rack	1	No	15,000	15,000	£81	15,000	£76	-	5
6	Installation labour and transport	1	No	20,000	20,000	£108	20,000	£101	-	7
	Total				**150,200**	**£812**	**143,300**	**£726**	**6,900**	**86**
	Grand total Sunshine solar				**875,800**	**4,734**	**850,300**	**4,308**	**25,500**	**426**

Summary of project successes and benefits

Successes:

As noted above, the project has already delivered higher productivity in the office, improved night security, reduced energy costs, an enhanced environmental credentials. The energy cost reduction is expected to get even better after the rainy season ends.

Challenges:

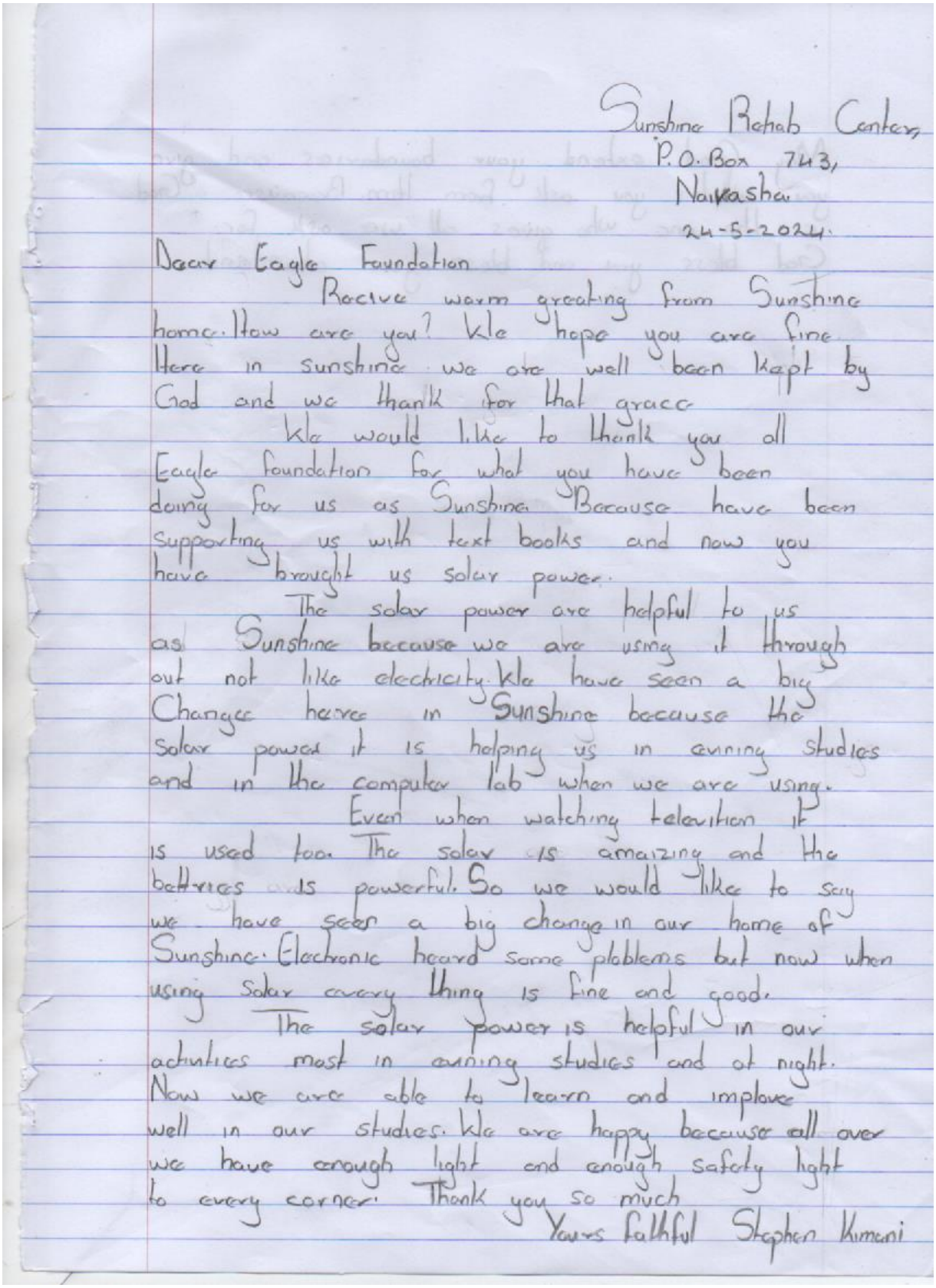
The project was delivered smoothly, with no major challenges.

Conclusion and thanks

We are enormously grateful to Fondation Eagle for their support for this and previous projects. Solar energy is clean. It creates no carbon emissions or other heat-trapping greenhouse gases. It avoids the environmental damage associated with mining or drilling for fossil fuels. Solar panels are easy to maintain, as they have no moving parts that wear out over time. Just keeping them clean and in good physical condition will keep them working properly.

The installation has reduced our reliance on the power grid. Uninterrupted availability of lights will help our boys study in the evening which we believe will improve their academic performance – one of our major objectives.

We are pleased to include letters of thanks below:



Sunshine Rehab Center,
P.O. Box 743,
Naivasha
24-5-2024.

Dear Eagle Foundation

Receive warm greating from Sunshine home. How are you? We hope you are fine. Here in sunshine we are well been kept by God and we thank for that grace

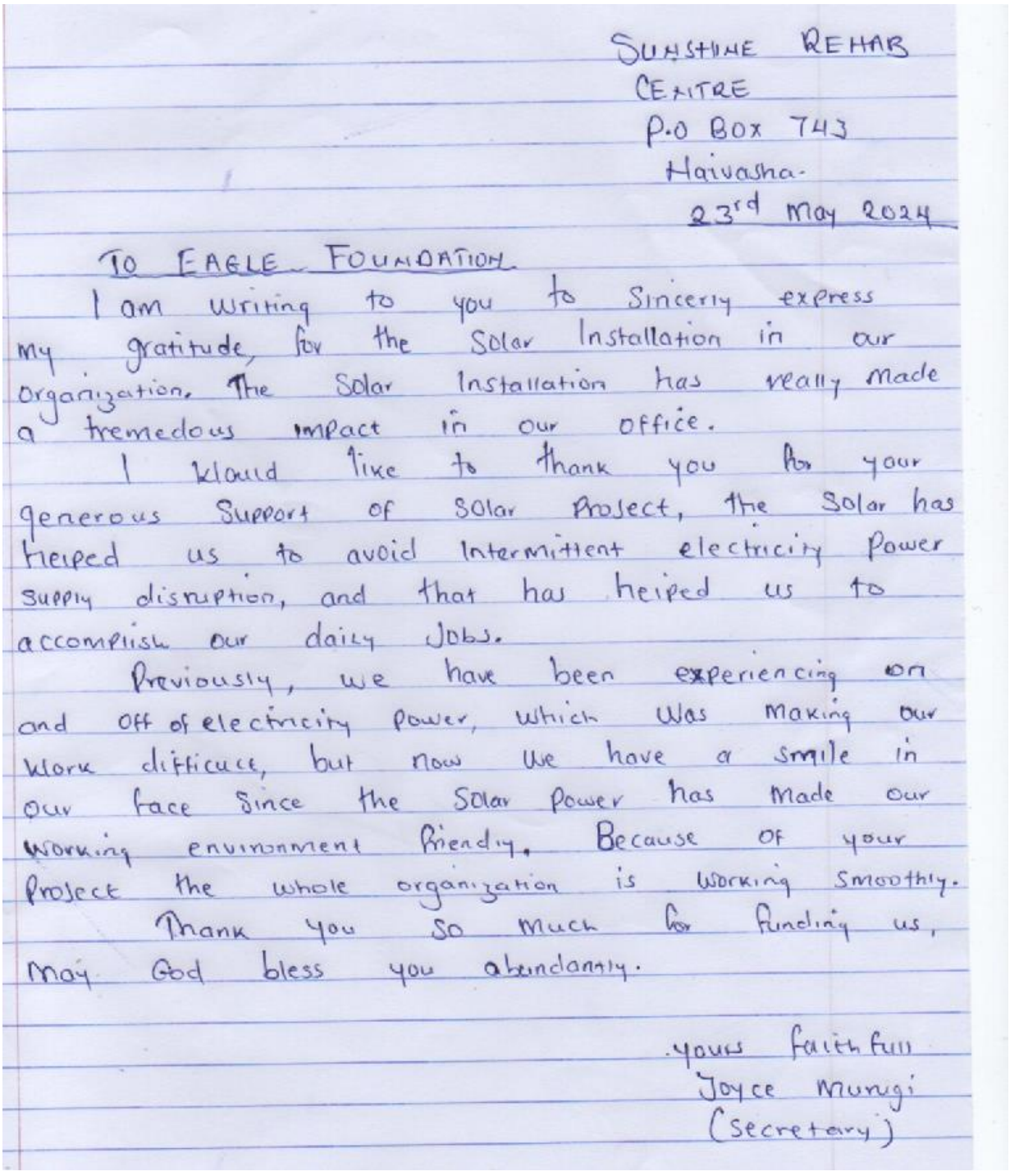
We would like to thank you all Eagle foundation for what you have been doing for us as Sunshine Because have been supporting us with text books and now you have brought us solar power.

The solar power are helpful to us as Sunshine because we are using it through out not like electricity. We have seen a big Changes heare in Sunshine because the solar powed it is helping us in evning studies and in the computer lab when we are using. Even when watching television it is used too. The solar is amazing and the battries is powerful. So we would like to say we have seen a big change in our home of Sunshine. Electronic heard some problems but now when using Solar every thing is fine and good.

The solar power is helpful in our activities most in evning studies and at night. Now we are able to learn and implove well in our studies. We are happy because all over we have enough light and enough safety light to every corner. Thank you so much

Yours faithful Stephen Kimani

Former street boy Stephen Kimani - a beneficiary at the Sunshine Centre



SUNSHINE REHAB
CENTRE
P.O BOX 743
Haivasha.
23rd May 2024

TO EAGLE FOUNDATION

I am writing to you to Sincerly express my gratitude for the Solar Installation in our organization. The Solar Installation has really made a tremedous impact in our office.

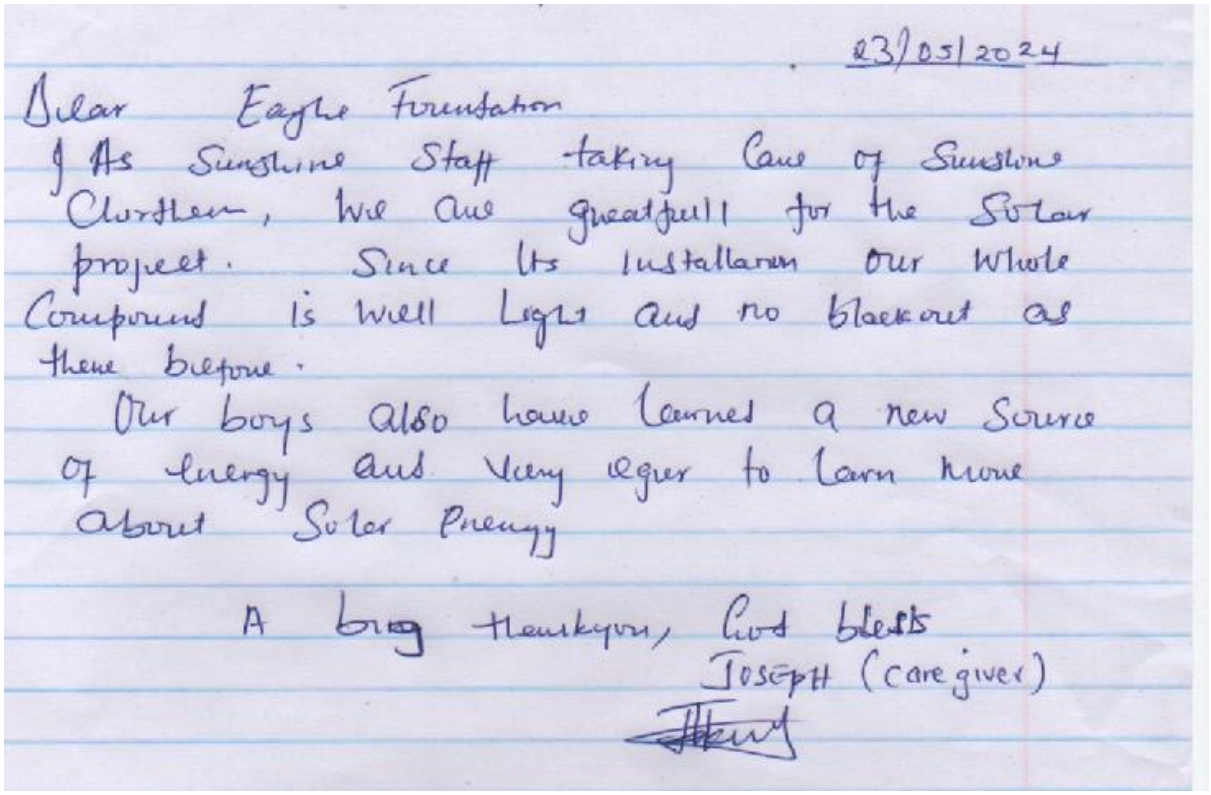
I klould like to thank you for your generous Support of Solar Project, the Solar has helped us to avoid Intermittent electricity Power supply disruption, and that has helped us to accomplish our daily Jobs.

Previously, we have been experiencing on and off of electricity power, which was making our work difficuce, but now we have a smile in our face since the Solar power has made our working environment friendly. Because of your Project the whole organization is working Smoothly.

Thank you so much for funding us, may God bless you abundantly.

.yours faithfull
Joyce Murugi
(Secretary)

Joyce Murugi - secretary and beneficiary of the solar in the offices



23/05/2024

Dear Eagle Foundation

I As Sunshine Staff taking Care of Sunshine Children, We are greatfull for the Solar project. Since its installation our Whole Compound is well Lights and no blackout as there before.

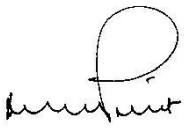
Our boys also have learned a new Source of Energy and very eger to learn more about Solar Energy

A big thankyou, God bless

Joseph (care giver)

Joseph Kamau – care giver at the Sunshine Centre

Signed (Martin Print, Trustee):



Date: 3rd October 2024